REMARKS

Claims 1, 4 and 10-22 are in this application and are presented for consideration. By this amendment, Applicant has amended claims 1, 4 and 10-12. Claims 2 and 3 have been canceled. Withdrawn claims 5-9 have been canceled subject to Applicant's right to file a divisional application to cover the features found in these claims. New claims 13-22 have been added, which are directed toward Figure 3 (the elected species) of Applicant's disclosure.

Claims 1, 2 and 10-12 have been rejected under 35 U.S.C. 102(b) as being anticipated by Freeman (US 5,060,063).

The present invention relates to an optical system for observing multiple objects that are located at a distance from one another. The optical system comprises two object prism units and two illumination units with each illumination unit being assigned to one of the object prism units. The illumination units are implemented as light-emitting semiconductor components. Applicant has discovered the problem that conventional optical systems are not of a compact design such that the conventional optical systems can be used in a limited space that is defined by two substrates in order to view the two substrates. Applicant has solved this problem by providing illumination units that comprise light-emitting semiconductor components. This advantageously provides a compact and space-efficient optical system that can be inserted into the limited space between two substrates. The prior art as a whole fails to teach and fails to suggest the combination of features claimed and the advantages associated with such a combination of features.

In a preferred embodiment, Freeman discloses a video probe for illuminating an object

102 and a device working on the object 104 while simultaneously viewing both. Video probe 100 has a housing 106 with a central viewing bore 108 having an optical axis 110 coaxial with a video camera 112. Housing 106 also has a viewing channel 114 having a central viewing axis 116 perpendicular to optical axis 110. An imaging beamsplitter 118 is centered at the intersection of the optical axis 110 and viewing axis 116 so that the video camera may simultaneously view the object 102 and the device acting on the object 104. An alignment knob 120 is disposed through the end 122 of the probe housing and holds the imaging beamsplitter to allow small rotational adjustment of the beamsplitter about the optical axis to attain alignment of the optical system during manufacturing. An object illuminating beamsplitter 124 is disposed in viewing channel 114 between viewing beamsplitter 118 and object 102 to direct illumination toward the object along viewing axis 116. A device illuminating beamsplitter 126 is disposed in the viewing channel between the viewing beamsplitter and device 104 to direct illumination toward the device along the viewing axis. Object illuminating beamsplitter 124 is larger than device illuminating beamsplitter 126 to equalize the path length the object and device images travel through the glass medium of the beamsplitters. Separate fiber optic light sources 128, 130, supply light to illuminating beamsplitters 124, 126 respectively. Each fiber optic source terminates in a closed cavity 132, 134 in probe housing 106 and illuminates a light disperser 136, 138 adjacent the respective illuminating beamsplitter 124, 126. Each disperser produces an even white tone across the adjacent face of the illuminating beamsplitter, which in turn produces a uniform illumination of the object or the device.

Freeman fails to teach and fails to suggest the combination of illumination units that are implemented light-emitting semiconductor components as claimed. Freeman merely discloses that fiber optic light sources 128, 130 supply light to illuminating beamsplitters 124, 126, respectively. This does not provide any teaching or suggestion for illumination units that are implemented as light-emitting semiconductor components as featured in the present invention. Compared with Freeman, the room between the two objects 62, 64 of the present invention is very limited because they have to be contacted via terminal surfaces 61, 63. The observation device of the present invention 40 is inserted into a contact gap 65 of the two substrates 62, 64 allows the correct orientation of the two terminal surfaces 61, 63, which are to contacted with one another, to be checked. The Office Action takes the position that semiconductor light-emitting diodes were known to a person of ordinary skill in the art. However, Freeman does not provide any teaching or suggestion that would direct a person of ordinary skill in the art to replace the fiber optic light sources 128, 130 with light-emitting semiconductor components. Freeman does not appreciate the problem that the present invention solves. Freeman is not focused on providing a compact optics system that can be used in a space that is limited between two substrates that are to be viewed. In contrast to Freeman, illumination units are implemented as light-emitting semiconductor components. This advantageously provides for a much more space-efficient and compact optics system when compared with Freeman since the light-emitting semiconductor components only need an electrical connection, which can be built by thin electrical cables. Such thin electrical cables occupy a very small space and are easily bent. This is a very different approach than the fiber

optic light sources 128, 130 of Freeman since the fiber optic light sources 128, 130 have to be bent with great radiuses in order to be guided outside. As such, the prior art as a whole takes a completely different approach and fails to teach or suggest each and every feature of the claimed combination. Accordingly, Applicant respectfully requests that the Examiner favorably consider claim 1 and all claims that depend thereon.

Claims 3 and 4 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman.

As previously discussed above, Freeman does not teach or suggest the combination of light-emitting semiconductor units as illumination units as featured in the present invention. Freeman only discloses fiber optic sources to generate energy. Freeman fails to be concerned with the problem of saving space between two substrates that are to be contacted with each other as featured in the present invention. Freeman does not provide any teaching or suggestion that would direct a person of ordinary skill in the art toward the space-saving benefits of using light-emitting semiconductor components as illumination units as featured in the present invention. The electrical connection of the light-emitting semiconductors of the present invention provides a compact optic systems that can be used in a confined space between two substrates. In contrast to the present invention, Freeman provides fiber optic cables that are only movable and bendable with great radiuses, which does not allow for a compact design as featured in the present invention. As such, the prior art as a whole does not establish a prima facie case of obviousness as the prior art as a whole does not direct a person of ordinary skill in the art toward important features of the claimed combination. Accordingly,

Applicant respectfully requests that the Examiner favorably consider claim 4 as now presented.

Applicant has added new claims 13-22 to further highlight the features of the present invention as shown in Figure 3 of Applicant's disclosure. Applicant respectfully requests that the Examiner favorably consider new claims 13-22.

Favorable consideration on the merits is requested.

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